THE SUBJECT MATTER CLAIMED IS:

1. A multichannel catheter useful for delivering extracorporeal blood to a mammal in need thereof by insertion into a blood vessel of the mammal, which catheter has a defined length with distal and proximal ends and comprises

a central, first channel defined by a surrounding wall extending substantially the length of the catheter, which channel is closed at its distal end;

a second channel (i) extending substantially the length of the catheter parallel to the first channel but independent thereof, (ii) being integrated into the wall of the first channel, and (iii) being open at its distal end;

a plurality of openings for the outflow of blood in the wall of the catheter communicating only with said first channel;

an inflatable bladder integrated into the distal end of the catheter between the openings for the outflow of blood and the second channel distal opening;

a third channel (i) extending substantially the length of said catheter integrated into the wall of the first channel; (ii) being parallel to the first and second channels but independent thereof, and (iii) having a distal opening in fluid communication with the interior of the inflatable bladder; and

a solid flexible shaft slidably engageable into the first channel extending substantially the length of the first channel.

2. The catheter of claim 1, wherein the closed distal end of the first channel is located proximal of the inflatable bladder.

3. The catheter of claim 1, wherein the proximal end of the first channel is designed to receive extracorporeal blood from a cardiopulmonary machine.

4. The catheter of claim 3 wherein the plurality of openings communicating with the first channel have an outflow capacity that exceeds the capacity for the blood to flow into the proximal end of the first channel.

5. The catheter of claim 1, wherein the proximal end of the third channel is designed to import or export fluid for inflating or deflating the inflatable bladder, respectively.

6. The catheter of claim 1, wherein the proximal end of the second channel is designed to receive cardioplegia solution, optical fibers, or a guidewire to aid in positioning the distal tip of the catheter in the ascending aorta of the mammal.

7. The catheter of claim 1, wherein the portion of the catheter extending beyond the closed distal end of the first channel is long enough to transcend the aortic arch when the inflatable bladder is positioned to block the ascending aorta.

8. The catheter of claim 7, wherein the portion of the catheter extending beyond the closed distal end of the first channel includes only the second and third channels.

9. The catheter of claim 1, wherein at least one opening in the first channel is elongate with the length of the elongate opening being parallel to the length of the catheter.

10. The catheter of claim 1, wherein the catheter is of a length that is sufficient to allow insertion into a femoral artery and positioning such that the distal end of the catheter is located in the ascending aorta such that the openings communicating with the first channel are positioned along the mid to distal portion of the catheter.

11. The catheter of claim 1, wherein markings are positioned near the proximal end of the catheter to mark the distance from the distal end of the catheter.

12. The catheter of claim 1, wherein the shaft has a handle on its proximal end for positioning the shaft along the length of the first channel.

13. The catheter of claim 1, wherein the second and third channels are positioned about 180° from each other in the wall of the first channel.

14. The catheter of claim 1, wherein the inflatable bladder, when inflated and viewed longitudinally, is of a cylindrical shape.

15. A process for preparing for cardiovascular surgery in a mammal, which process comprises

(A) inserting into a femoral artery of the mammal the distal end of the catheter of claim 1 with the flexible shaft slidingly engaged in the first channel to prevent backflow of blood,

(B) positioning the catheter so that the inflatable bladder is located in the ascending aorta, and

(C) removing the flexible shaft from the first channel to allow the first channel to be connected to a cardiopulmonary machine to pump blood into the first channel at the proximal end of the first channel.

16. The process of claim 15, which further comprises

(D) inserting at least one cannula into a mammal's peripheral veins to position it so the distal open end of the cannula is adjacent the vena cava regions of the mammal's heart and the proximal end of the cannula is attached to a cardiopulmonary machine through a pump wherein the cardiopulmonary machine comprises a blood oxygenation means fluidly connected to the pump,

(E) providing a source of oxygenated blood from the cardiopulmonary machine to the proximal end of the first channel;

(F) providing a source of cardioplegia fluid to the proximal end of the second channel in an amount sufficient to reach the coronary arteries and reduce the heart rate;

(G) providing a source of fluid for inflating the inflatable bladder to the proximal end of said third channel to inflate the inflatable bladder to block the flow of blood to the heart;

(H) pumping oxygen-rich blood through the first channel and out the first channel openings at a rate sufficient to maintain the mammal's metabolism and perfusion; and

(I) removing oxygen-depleted blood from the mammal's vena cavae regions through the femoral vein cannula.

17. The process of claim 16 that further comprises performing cardiovascular surgery as needed and continuing to pump the oxygen-rich blood to the mammal at a rate sufficient to maintain the mammal's metabolism and perfusion.

18. A process for preparing a multichannel catheter, which process comprises:

(A) extrusion molding a catheter having distal and proximal ends wherein the catheter comprises

(1) a central, first channel extending substantially the length of the catheter and being defined by the wall of the catheter;

(2) a second channel extending the entire length of the catheter, being integrated into the wall of the first channel;

(3) a third channel extending substantially the length of the catheter parallel to the first and second channels but independent thereof and being integrated into the wall of the first channel and spaced from the second channel,

(B) integrating an inflatable bladder into the distal end of the catheter so that the distal outlet of the third channel communicates with the interior of the bladder; and

(C) slidingly inserting a flexible, elongated, shaft into the central first channel, a handle for positioning the shaft within the central channel.

19. A multichannel catheter useful for extracorporeal circulation of the blood to a patient undergoing cardiovascular surgery, which catheter comprises

at least three independent channels and an expandable balloon at one end of the catheter;

a first widest channel of a size to permit delivery of an amount of blood to the patient that is sufficient to support the patient metabolism and perfusion throughout the surgery, wherein the first channel has a series of outlet ports along at least a portion of the wall of the channel;

a second channel, narrower than the first channel and integrated into the wall of the first channel, the second channel suitable at least for delivering cardioplegia solution to the heart or for venting the left heart;

a third channel also narrower than the first channel and integrated into the wall of the first channel, said third channel suitable for delivery of fluid to the balloon for expansion when positioned in the ascending aorta to occlude the flow of blood,

and

a flexible shaft slidably inserted into the first channel of the catheter and having a handle located at the proximal end of the shaft for slidably positioning the shaft along the length of the first channel to block at least one outlet port.

20. An obturator useful for slidably inserting into a blood-flow catheter, which oburator comprises a flexible shaft made of medical grade polymeric materials having a length of

about 40 cm to about 120 cm, having a cross-sectional diameter of less than about 28.2 French, having a Durometer rating of about 40A to about 90A, and having a cross-sectional design to snugly and slidingly fit into a blood flow catheter channel to block the flow of blood through the channel.

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